



PATENT

ATTORNEY DOCKET: 46884-5318

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
)  
)Fumitsugu FUKUYO et al. )  
)  
)

Confirmation No.: 1798

Application No.: 10/507,392 )  
)  
)

Group Art Unit: 2812

Filed: April 8, 2005 )  
)  
)

Examiner: Elias Ullah

For: LASER PROCESSING METHOD )  
)  
)

Commissioner for Patents

U.S. Patent and Trademark Office

Customer Window Mail Stop: ☒ Amendment ☐ AF ☐ Issue Fee

Alexandria, VA 22314

Sir:

**INFORMATION DISCLOSURE STATEMENT (IDS)**

☐ **Under 37 C.F.R. § 1.97(b):** Pursuant to 37 C.F.R. §§ 1.56 and 1.97(b), Applicant brings to the attention of the Examiner the documents listed on the attached PTO Form 1449. To the undersigned's knowledge, this IDS is being filed before the mailing date of a first Office Action on the merits, before the mailing date of a first Office Action on the merits after filing an RCE under § 1.114, or within three months of the application filing date.

☒ **Under 37 C.F.R. § 1.97(c):** Pursuant to 37 C.F.R. §§ 1.56 and 1.97(c), Applicant brings to the attention of the Examiner the documents listed on the attached PTO Form 1449. This IDS is being filed after the events recited in § 1.97(b) but, to the undersigned's knowledge, before the mailing date of a Final Office Action, a Notice of Allowance, or another action that closes prosecution in the application.

☒ The fee of \$180.00 set forth in § 1.17(p) is included herein; or

☐ Applicant submits that each item of information contained in this IDS was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS.

☐ **Under 37 C.F.R. § 1.97(d):** Pursuant to 37 C.F.R. §§ 1.56 and 1.97(d), Applicant brings to the attention of the Examiner the documents listed on the attached PTO Form 1449. This IDS is being filed after the events recited in § 1.97(c) but before payment of the issue fee.

07/19/2007 140001 00000033 15507392  
81 FC:1866 180.00 00

☐ The fee of \$180.00 set forth in § 1.17(p) is included herein; and

☐ Applicant submits that each item of information contained in this IDS was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS.

☐ **Under 37 C.F.R. § 1.97(i):** Pursuant to 37 C.F.R. §§ 1.56 and 1.97(i), Applicant brings to the attention of the Examiner the documents listed on the attached PTO Form 1449. This IDS is being filed after the events recited in § 1.97(d). Applicant requests that the IDS be placed in the file.

☒ An Office Action from a related U.S. application dated May 31, 2007 and having documents cited thereon is attached for the Examiner's consideration. Any of these documents not previously cited, and any additional documents are listed on the PTO Form 1449. The related application publication no 2005/0189330 is also listed.

☒ Applicant respectfully requests that the Examiner consider the listed documents and evidence that consideration by making appropriate notations on the attached form. As for any document listed on the accompanying PTO-1449 that is in a language other than English, relevance can be understood from an enclosed English abstract or at least partial translation or from mention in the specification or in a search report for a corresponding application.

This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that any of the listed documents are material or constitute "prior art." If it should be determined that any of the listed documents do not constitute "prior art" under United States law, Applicant reserve the right to present to the Office the relevant facts and law regarding the appropriate status of such documents.

Applicant further reserves the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should any of the documents be applied against the claims of the present application.

Except for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this Application, including fees due under 37 C.F.R. § 1.16 and 1.17 which may be required and including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0573. This paragraph is intended to be a CONSTRUCTIVE PETITION FOR EXTENSION OF TIME in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

**DRINKER, BIDDLE & REATH LLP**

  
Peter J. Sistrare

Registration No. 48,183

Dated: July 18, 2007

**CUSTOMER NO. 055694**  
**DRINKER, BIDDLE & REATH LLP**  
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Date of Dispatch: May 31, 2007

## OFFICE ACTION

Patent Application NO.: 11/106644

### Cited Documents:

- 1 . Japanese Patent Application Laid-Open No. S59-130438
- 2 . Japanese Patent Application Laid-Open No. S60-144985
- 3 . Japanese Patent Application Laid-Open No. H3-276662
- 4 . Japanese Patent Application Laid-Open No. H4-300084
- 5 . Japanese Patent Application Laid-Open No. H9-260310
- 6 . US Patent No. US3629545 \*
- 7 . US Patent No. US6181728
- 8 . US Patent No. US6285002
- 9 . US Patent No. US6031201
- 10 . US Patent No. US4242152



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1459  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/106,644	04/15/2005	Fumitsugu Fukuyo	046124-5202-04	3820
55694 7590 05/31/2007 DRINKER BIDDLE & REATH (DC) 1500 K STREET, N.W. SUITE 1100 WASHINGTON, DC 20005-1209				
EXAMINER HEINRICH, SAMUEL M				
ART UNIT 1725		PAPER NUMBER		
MAIL DATE 05/31/2007		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

11/106,644

Applicant(s)

FUKUYO ET AL.

Examiner

Samuel M. Heinrich

Art Unit

1725

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 45-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 45-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
- 2) ☒ Certified copies of the priority documents have been received in Application No. 10/385,696.
- 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 5/2/07.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 45-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP359130438A in view of USPN 6,031,201 to Amako et al. JP359130438A describes dicing a grooved wafer, but does not describe using a laser to create the grooves. Amako et al describe (Abstract) well known use of an elliptically polarized laser beam for high precision machining. The use of the elliptically polarized beam in a dicing wafer process would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the elliptically polarized beam provides uniform cutting width and depth.

Claims 45-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP359130438A in view of USPN 6,285,002 to Ngoi et al. JP359130438A describes dicing a grooved wafer, but does not describe using a laser to create the grooves. Ngoi et al describe (Abstract) well known use of elliptical or circular laser beam spots for micro machining. The use of the well known beam spot in a dicing wafer process would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because applied beam quality is improved.

#### ***Response to Arguments***

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.


#### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel M. Heinrich whose telephone number is 571-272-1175. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, P. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Samuel M Heinrich  
Primary Examiner  
Art Unit 1725

SMH





# INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

Page 1 of 2  
PTO Form 1449

Attorney Docket No.  
46884-5202-04

Application No.: 11/106,644

Applicant(s):  
Fumitsugu FUKUYO et al.

Filing Date:  
April 15, 2005

Group Art Unit:  
1725

## U.S. PATENT DOCUMENTS

*Examiner Initial	Document Number	Date	Name	Class	Sub Class	Filing Date
<i>SMH</i>	2002/0170896	Nov. 21, 2002	Choo et al.	219	121.72	May 21, 2002
	2004/0002199	Jan. 1, 2004	Fukuyo et al.	438	460	Mar. 12, 2003
	2005/0189330	Sep. 1, 2005	Fukuyo et al.	219	121.72	Apr. 15, 2005
	2006/0040473	Feb. 23, 2006	Fukuyo et al.	438	463	Oct. 17, 2005
	3,610,871	Oct. 5, 1971	Lumley	219	121	Feb. 19, 1970
	5,211,805	May 18, 1993	Srinivasan	156	543	Dec. 19, 1990
	5,656,186	Aug. 12, 1997	Mourou et al.	219	121.69	Apr. 8, 1994
	5,968,382	Oct. 19, 1999	Matsumoto et al.	219	121.72	Jul. 12, 1996
	5,976,392	Nov. 2, 1999	Chen	216	16	Mar. 7, 1997
	6,653,210	Nov. 25, 2003	Choo et al.	438	460	May 21, 2002
	6,992,026	Jan. 31, 2006	Fukuyo et al.	438	797	Mar. 12, 2003

## FOREIGN PATENT DOCUMENTS

Document Number	Date	Country	Class	Sub Class	Translation YES	Translation NO
EP 1 026 735 A2	Aug. 9, 2000	Europe				
EP 0 863 231 A1	Sept. 9, 1998	Europe				
JP 03-234043	Oct. 18, 1991	Japan			Abstract	
JP 04-188847	Jul. 7, 1992	Japan			Abstract	
JP 04-356942	Dec. 10, 1992	Japan			Abstract	
JP 06-188310	Jul. 8, 1994	Japan			Abstract	
JP 07-037840	Feb. 7, 1995	Japan			Abstract	
JP 07-263382	Oct. 13, 1995	Japan			Abstract	
JP 08-264488	Oct. 11, 1996	Japan			Abstract	
JP 09-017756	Jan. 17, 1997	Japan			Abstract	
JP 09-017831	Jan. 17, 1997	Japan			Abstract	
JP 09-263734	Oct. 7, 1997	Japan			Abstract	
JP 11-121517	Apr. 30, 1999	Japan			Abstract	
JP 11-162889	Jun. 18, 1999	Japan			Abstract	
JP 11-163097	Jun. 18, 1999	Japan			Abstract	
JP 2000-104040	Apr. 11, 2000	Japan			Abstract	
JP 2000-124537	Apr. 28, 2000	Japan			Abstract	
JP 2000-195828	Jul. 14, 2000	Japan			Abstract	
JP 2000-216114	Aug. 4, 2000	Japan			Abstract	
JP 2001-127015	May 11, 2001	Japan			Abstract	
JP 2001-250798	Sept. 14, 2001	Japan			Abstract	
JP 2002-050589	Feb. 15, 2002	Japan			Abstract	

Examiner

*S. HENRITO*

Date Considered

*5-26-07*

Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

# INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

Page 2 of 2  
PTO Form 1449

Attorney Docket No.  
46884-5202-04.

Application No.: 11/106,644

Applicant(s):  
Fumitsugu FUKUYO et al.

Filing Date:  
April 15, 2005

Group Art Unit  
1725

## FOREIGN PATENT DOCUMENTS

	Document Number	Date	Country	Class	Sub Class	Translation	
						YES	NO
<i>smk</i>	JP 2002-158276	May 31, 2002	Japan				X
	JP 2002-224878	Aug. 13, 2002	Japan			Abstract	
	JP 2002-226796	Aug. 14, 2002	Japan			Abstract	
	JP 2003-001458	Jan. 8, 2003	Japan			Abstract	
	JP 20023-334812	Nov. 25, 2003	Japan			Abstract	
	JP 2003-338467	Nov. 28, 2003	Japan			Abstract	
	JP 2005-001001	Jan. 6, 2005	Japan			Abstract	
	JP 2005-159378	Jun. 16, 2005	Japan			Abstract	
	JP 2005-159379	Jun. 16, 2005	Japan			Abstract	
	JP 2006-128723	May 18, 2006	Japan			Abstract	
	JP 2006-135355	May 25, 2006	Japan			Abstract	
	JP 60-055640	Mar. 30, 1985	Japan			Abstract	
	JP 61-121453	Jun. 9, 1986	Japan			Abstract	
	JP 62-004341	Jan. 10, 1987	Japan			Abstract	
	JP 64-038209	Feb. 8, 1989	Japan			Abstract	
	KR 2001-017690	Mar. 5, 2001	Korea			Abstract	
	WO 01/90709 A1	Nov. 29, 2001	PCT			Abstract	
	WO 02/07927 A1	Jan. 31, 2002	PCT			Abstract	
	WO 02/22301 A1	Mar. 21, 2002	PCT			Abstract	
	WO 03/076118	Sept. 18, 2003	PCT			Abstract	

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

Journal of Japan Laser Processing Society, Vol. 12, No. 1, Feb. 2005, pp. 15-23 (with English language translation)

Proceedings of the 63<sup>rd</sup> Laser Materials Processing Conference, May 2005, pp. 115-123

A. Ishii et al., CO2 Laser Processing Technology, Nikkan Kogyo Publishing Production, Dec. 21, 1992, pps. 63-65 (with partial English translation)

Journal of the Japan Society of Gridding Engineers, Vol. 47, No. 5, May (2003), pps. 229-231 (including English language translation)

The 6<sup>th</sup> International Symposium on Laser Precision Microfabrication, April 2005

Examiner

*S. Howard*

Date Considered

*5-26-07*

Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

# **Notice of References Cited**

Application/Control No.  
11/106,644

Applicant(s)/Patent Under  
Reexamination  
FUKUYO ET AL.

Examiner  
Samuel M. Heinrich

Art Unit  
1725

Page 1 of 1

## **U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-3,629,545	12-1971	Graham et al.	219/121.72
*	B	US-6,181,728	01-2001	Cordingley et al.	372/106
*	C	US-6,285,002	09-2001	Ngoi et al.	219/121.73
*	D	US-6,031,201	02-2000	Amako et al.	219/121.68
*	E	US-4,242,152	12-1980	Stone, Richard H.	219/121.61
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

## **FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N	JP359130438A	07-1984	Japan	Hitachi	
	O	JP360144985A	07-1985	Japan	Fujitsu	
	P	JP403276662A	12-1991	Japan	Nippon Steel	
	Q	JP04300084A	10-1992	Japan	Toshiba	
	R	JP409260310A	10-1997	Japan	Hitachi	
	S					
	T					

## **NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



# INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

PTO Form 1449

Attorney Docket No.:

46884-5318

Serial No.:

10/507,392

Applicants:

Fumitsugu FUKUYO et al.

Filing Date:

April 8, 2005

Group Art Unit:

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## U.S. PATENT DOCUMENTS

Examiner Initial	Document Number	Date	Name	Class	Sub Class	Filing Date
	6,181,728 B1	January 30, 2001	<i>Cordingley et al.</i>	-	-	
	6,285,002 B1	September 4, 2001	<i>Ngoi et al.</i>	-	-	
	6,031,201	February 29, 2000	<i>Amako et al.</i>	-	-	
	4,242,152	December 30, 1980	<i>Stone</i>	-	-	
	2005/0189330	September 1, 2005	<i>Fukuyo et al.</i>	-	-	

## FOREIGN PATENT DOCUMENTS

	Document Number	Date	Country	Class	Sub Class	<u>Translation</u> YES NO
	59-130438	July 27, 1984	Japan			Abstract
	60-144985	July 31, 1985	Japan			Abstract
	3-276662	December 6, 1991	Japan			Abstract
	4-300084	October 23, 1992	Japan			Abstract
	9-260310	October 3, 1997	Japan			Abstract

Examiner

Date Considered

Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.